

root subsequently beneath. The root then penetrates into the soil, the prothallium having been fastened to the surface by its rootlets. The foot beneath is intimately adherent to the tissue of the prothallium, and stretches over the upper opening of the spore, for the purpose of taking up its nutritive material and handing this over to the other parts of the germ. The young bud remains long concealed; but when it subsequently breaks out, the cast remains of the prothallium perish.

The more particular description of the entire process of development, especially the cell-division of the germ, the appearance of the vascular bundles and of the later roots, and the evolution of the leaves, will shortly be published, with the necessary figures, in Pringsheim's 'Annalen.'

XLVI.—*Diagnoses of new Forms of Mollusca from the Vancouver District.* By PHILIP P. CARPENTER, B.A., Ph.D.

THE shells here described were mostly collected by Indian children for their excellent teacher Mr. J. G. Swan, in the neighbourhood of Neeah Bay, W. T. They were presented by him to the Smithsonian Institution, Washington, D. C.; and, in accordance with their liberal policy, the first available duplicates will be found in the British Museum or in Mr. Cuming's Collection. The species are numbered to correspond with the list in the British Association Report for 1863, pp. 626-628; see also pp. 636-664.

5. *Mara salmonea.*

M. testa parva, solida, compacta, subquadrata; lævi, nitente, epidermide tenui cinerea induta; extus pallide, intus vivide salmoneo tincta; marginibus dorsalibus rectis, ad angulum 120° separatis, unbonibus haud extantibus; marginibus antico et ventrali regulariter late excurvatis; parte postica brevissima, haud angulata: intus, dent. card. utraque valva ii., quorum unus bifidus; laterali-bus v. dextr. æquidistantibus, ant. extante, post. parvo; nymphis rectis, haud conspicuis; cicatr. add. post. subrotundata, ant. sub-rhomboidæa; sinu pallii satis regulariter ovali, per iv. inter v. partes interstitii porrecto. Long. .57, lat. .45, alt. .11 poll.

Variat testa aurantiaca, rarius albida, rosaceo tincta.

Hab. San Francisco (*Pac. Rail. E. E.*); Neeah Bay (*Swan*), plentiful; Monterey, 20 fathoms (*Cooper*).

In shape almost close to *Macoma crassula*, Desh. (Arctic); but that species is thinner, not glossy or salmon-coloured, and has no lateral teeth.

6. *Angulus variegatus.*

A. testa forma A. obtuso simili, sed costa interna omnino carente, valde inæquilaterali, solidiore, nitente, rosaceo et flavido subradia-

tim eleganter variegata; striis incrementi concentricis, postice extantioribus; umbonibus postice flectentibus, obtusis; parte antica prolongata, regulariter excurvata; marginibus dorsali et ventrali subparallelis, subrectis; parte postica curtior, subangulata: intus, dent. card. utraque valva ii. minutis, quorum alter bifidus; v. dext. dent. lat., ant. curto, satis extante, post. nullo; nymphis curtis, latis, parum concavis, subito sectis, valvis postea subalatis; sinu pallii fere cicatr. aut. tenus porrecto. Long. .72, lat. .42, alt. .15.

Hab. Neeah Bay (*Swan*); Monterey and Catalina Island, 20–60 fathoms, rare (*Cooper*).

Subgenus MIODON*.

Testa Lucinoidea, dentibus cardinalibus, ut in *Cardita*, elongatis; laterali antico parvo instructa.

This little group of species is intermediate in character between *Astarte*, *Venericardia*, and *Lucina*. It first appears in the Great Oolite, where it is represented by *Astarte* (*Miodon*) *orbicularis*, J. Sby. Min. Conch. pl. 444. f. 2, 3. This must not be confounded with a second and true *Astarte orbicularis*, by the same author, pl. 520. f. 2. It appears in Mr. Scarles Wood's Crag-series as *Astarte corbis*. The following is the only recent species at present known.

9. *Miodon prolongatus*.

M. testa parva, solida, tumida, compacta, albida; ventraliter antice valde prolongata, excurvata; lunula longa, rectiore, haud impressa; umbonibus antice inflectis, obtusis, valde prominentibus; margine dorsali postico parum excurvato; costis radiantibus x.–xii. latis, obtusis, marginem attingentibus, parum expressis, dorsaliter obsoletis, a liris incrementi concentricis, plus minusve distantibus, expressis, hic et illic interruptis: intus, margine a costis plus minusve obsoletim crenulato; cardine dentibus v. dextr., uno postico, inter duas fossas elongato, et lat. ant. lunulari; v. sinistr., dent. ant. triangulari, post. valde elongato, lat. ant. minimo, obsoleto; cicatr. add. subrotundatis, ventraliter sitis. Long. .23, lat. .24, alt. .16.

Subgenus ADULA, Add. (diagn. auct.).

Testa inter *Modiolum* et *Lithophagum* intermedia, cylindracea; umbonibus obtusis; parte antica longiore; ligamento subinterno, valde elongato; epidermide haud testacea.

Animal byssiferum, in cryptis affixum; musculis adductoribus majoribus, antico ovato.

Constituted by Messrs. Adams for *A. soleniformis*, D'Orb., which very closely resembles the young of the Vancouver species: enlarged to receive the shells of Lithophagoid shape which are

* *Th. μείων*, smaller; *ὀδοὺς*, tooth.

moored by byssus, like *Modiola*. The largest known species is *A. falcata*, Gld., which is normally straight, but often grows in a twisted burrow. *A. parasitica*, Desh., and the long-known *A. cinnamomea* appear congeneric.

13. *Adula stylina*.

A. testa cylindracea, lithophagoidea, lævi, tenuissima, parum arcuata, subnacreæ, albida, postice interdum livido tineta; epidermide nitente, lævi, solidiore, nigro-fusca: testa jun. typice modiolæformi, umbonibus subanticis, obtusissimis; margine dorsali antice (rarissime paululum, testa minima, postice) tenuiter crenulato: testa adulta marginibus dors. et ventr. fere parallelis, ant. et post. rotundatis; umbonibus detritis, haud conspicuis, circiter sextantim antice sitis; incrustatione haud solida, densissime spongiosa, aream posticam diagonalem tegente, supra valvas prolongata, appressa; ligamento interno, postice valde prolongato; pagina interna pallida; cicatr. add. postica tumida, pyriformi, antica (quoad familiam) maxima, haud impressa, oblonga; cicatr. pedali antea magna, circulari, impressa; callositate subumbonali (testa jun.) cicatr. pedalem versus conspicua. Long. .155, lat. .4, alt. .5. Variat t. magis arcuata; ut in *A. falcata*, antice tumidiore, subangulata.

Variat quoque testa attenuata.

Variat interdum ventraliter late hiante.

Hab. Neeah Bay, abundant (*Swan*); Monterey (*Taylor*).

On smashing a large lump of hard clay, bored by Pholads, Petricolids, &c., large numbers of this species, with a few of *A. falcata*, of all ages from .06 onwards, were found *in situ*. Several struggled for room in a single crypt. The umbos are abraded by the wide opening of the valves.

14. *Axinæa* (?septentrionalis, var.) *subobsoleta*.

A. testa *A. septentrionali* simili, parum inæquilaterali, haud tumida; umbonibus obtusis, latis, satis prominentibus; cinerea, rufo-castaneo varie picta; epidermide copiosa, sublaminata; marginibus ventrali et postico valde rotundatis, antico parum producto, dorsali recto; sulcis radiantibus subobsoletis sculpta, dorsaliter sæpe evanidis: intus, marginibus ventrali valde, ant. et post. parum crenatis; lamina cardinis subangulata; dentibus paucioribus, validis, angustatis; cicatr. add. antica castanea, callosa; ligamento sulcato. Long. .13, lat. .12, alt. .7.

Hab. Neeah Bay (*Swan*); Shoalwater Bay (*Cooper*).

Middendorff's shell is figured with much stronger ribs, but may have been described from decorticated specimens.

15. *Siphonaria Thersites*.

S. testa parva, tenui, haud elevata, valde inæquilaterali, dense nigro-castanea, lævi, seu interdum costulis paucis, obtusis, obsoletis,

radiatim vix ornata; epidermide lævi, tenui, fugaci; costa pulmonali intus et extus valde conspicua, tumente; vertice obtuso, plerumque ad quadrantem, interdum ad trientem totius longitudinis sito; intus intense nigro-fusco, margine acuto. Long. .46, lat. .33, alt. .17.

Hab. Neeah Bay (*Swan*).

This genus, which culminates in western tropical America and at Cape Horn, is not known in California. The Vancouver species resembles *S. lateralis* and its congeners, but differs in having an enormous lung-rib and no colour-rays.

16. *Mopalia* (*Kennerleyi*, var.) *Swannii*.

M. testa M. Kennerleyi typicæ simili, sed jugo fornicato, haud carinato; omnino rubida, sculptura multo minus expressa; areis lateralibus vix definitis; latera versus subgranulata; dorsum versus lineis jugum versus procedentibus, interstitiis punctatis; sinu postico latiore; limbo pallii lato, coriaceo, vix piluloso. Long. 2.4, lat. 1, div. 120°.

Hab. Tatooeche Island (*Swan*).

23. *Margarita Cidaris*, A. Ad.

M. testa magna, conica, Turcicoidea, tenui; albido-cinerea, nacreo-argentato; anfr. nucleosis?... (decollatis), norm. vii., subplanatis; suturis alte insculptis; superficie spiræ tota valide tuberculosa, seriebus tribus, alteris postea intercalantibus; periphæria et basi rotundatis, carinatis; carinis circ. viii., haud acutis, irregularibus, scabris, haud tuberculosus; lacuna umbilicali vix conspicua; apertura subrotundata; labro tenuissimo; labio obsoleto; columella arcuata. Long. 1.1, long. spir. .65, lat. .75, div. 60°.

Hab. Neeah Bay (*Swan*).

Mr. A. Adams suggested the above expressive name for this very remarkable and unique shell.

25. *Gibbula parcipicta*.

G. testa solidiore, parva, conica, pallida, purpureo-fusco varie nebulosa et maculata; anfr. v., rotundatis; carinis ii. validis in spira se monstrantibus, minore intercalante; interstitiis subsuturalibus, sublævibus, inter carinas obtuse decussatis; lira periphærica definita, sæpe in spira se monstrante; basi valde rotundata; lirulis basalibus circ. v. rotundatis, subdistantibus; apertura subcirculari; columella arcuata; umbilico majore, infundibuliformi, haud angulato. Long. .14, long. spir. .07, lat. .13, div. 70°.

Hab. Neeah Bay (*Swan*); Santa Cruz (*Rowell*).

26. *Gibbula succincta*.

G. testa parva, subelevata, solidiore; livida, testa jun. strigis angustis, creberrimis, fusco-purpureis penicillata, testa adulta maculis quoque magnis nebulosa; anfr. v., subquadratis; liris obtusis medianis

et striis subobsoletis cincta, suturis valde impressis; basi rotundata, obtuse angulata, striis sæpe evanidis spiralibus ornata, testa adulta circa umbilicum magnum, infundibuliformem, vix angulatum, sæpe tumidiore, medio obtuse impressa; apertura subquadrata, parum declivi; columella subarcuata. Long. .16, long. spir. .07, lat. .16, div. 70°.

Hab. Neeah Bay (*Swan*); Lower California, on *Haliotis* (*Rowell*).

27. *Gibbula lacunata*.

G. testa parva, fusco-purpurea, solidiore; marginibus spiræ valde excurvatis; anfractibus nucleosis normalibus, postea iv. subplanatis, suturis distinctis, apice mamillato; sublævi, circa basin vix angulatam striolata, striolis spiralibus distantibus; apertura suborbiculari, parum declivi; labio juxta umbilicum constrictum, quasi lacunatum, lobato; columella callositate parva umbilicum constringente. Long. .11, long. spir. .05, lat. .11, div. 80°.

Hab. Neeah Bay (*Swan*).

28. *Gibbula funiculata*.

G. testa parva, elevata, compacta, fusca; marginibus spiræ excurvatis; anfr. vi., haud tumidis, suturis parum impressis; lirulis crebris rotundatis undique cincta, quarum v. in spira monstrantur; interstitiis parvis; basi rotundata, haud angulata; umbilico parvo, haud carinato; apertura suborbiculari, parum declivi; columella vix arcuata. Long. .24, long. spir. .11, lat. .2, div. 70°.

Hab. Neeah Bay (*Swan*), specimen unicum.

29. *Hipponyx cranioides*.

H. testa valde planata, majore, albida; vertice nucleoso? ...; testa adulta apice interdum subcentrali, sæpius plus minusve postico; laminis incrementi confertis, undique rapide augmentibus; striis radiantibus fortioribus, confertissimis, laminarum margines sæpe crenulantibus; margine acuto; cicatr. muse. angusta, margini contigua, regione capitis minore, sæpe dextrorsum torsa; epidermide?... Long. .85, lat. .75, alt. .3.

Hab. Neeah Bay (*Swan*).

30. *Bivonia compacta*.

B. testa satis magna, sæpe solitaria, purpureo-fusca, spiraliter plerumque satis regulariter contorta, obsoletim cancellata seu sculptura fere evanida; testis tenacissime adhærente. Long. (plerumque) .7, lat. .3, diam. apert. .1.

Hab. Barclay Sound; abundant on *Pachypoma gibberosum* (*Swan*).

Belongs to *Bivonia*, Gray (not Mörch). Has the aspect of *Petalocochnus macrophragma* on a large scale, but is entirely destitute of internal laminæ. One specimen had a faint colu-

mellar thread for two whirls only. Operculum normal, with thin edge, dark red.

32. *Lacuna porrecta*.

L. testa L. puteolo simili, sed multo majore, spira magis exserta; seu omnino fusca, seu zona pallidior, seu pallida lineolis fusciscentibus tenuissime spiraliter ornata; epidermide tenuiter striata olivacea seu viridescente induta; tenuiore, spiraliter tenuiter striata; anfr. v., vix planatis, rapide augmentibus, suturis impressis, vertice mamillato; apertura tumente; labio tenui, vix parietem attingente, intus subrecto; lacuna maxima, elongata, ad basin arcuata; peripheria expansa. Long. .52, long. spir. .2, lat. .4, div. 80°.

?Var. *effusa*: testa *L. porrectæ* simili, sed multo majore; spira elevata, satis effusa; anfr. tumidioribus, suturis valde impressis; aperturam versus magis expansa. Long. .65, long. spir. .25, lat. .5, div. 60°.

?Var. *exæquata*: testa *L. effusæ* simili, sed anfr. planatis, suturis parum impressis. Long. .5, long. spir. .2, lat. .42, div. 80°.

Hab. Neeah Bay (*Swan*).

The form *L. exæquata* is intermediate between the very different *L. porrecta* and *L. effusa*. The *Lacunæ* vary so much (*vide Forbes & Hanley in loco*) that, even with a large multitude of specimens, it is not easy to state what constitutes a species.

33. *Lacuna* (? *solidula*, var.) *compacta*.

L. testa L. solidulæ, var., simili; parva, solida, compacta, angusta, subturrita, marginibus spiræ excurvatis: aurantiaca, interdum pallidior, zonata; anfr. subplanatis, suturis distinctis; tota superficie confertissime spiraliter striolata; basi valde angulata, subplanata; apertura subquadrata; columella vix lacunata. Long. .23, long. spir. .1, lat. .17, div. 60°.

Variat testa elongata: variat quoque columella normaliter lacunata.

Hab. Neeah Bay (*Swan*).

Possibly an extreme form of the very variable *L. solidula*, Lov. (= *L. carinata*, Gld., non A. Ad., = *Modelia striata*, Gabb), yet distinct in all ages. The young shells resemble small *Litorinæ*.

34. *Lacuna variegata*.

L. testa tenui, plus minusve elevata, soluta, irregulari; adolescente fusco-purpureo; adulta livida, radiatim seu diagonaliter varie irregulariter strigata, strigis fusco-aurantiacis, sæpe ziczacformibus; anfr. vi., quorum primi compacti, apice submamillato; dein solutis, postice planatis, antice expansis; basi rotundata seu angulata; apertura subovata; labro postice porrecto; labio sæpe parietem vix attingente; columella intus recta, extus valde lacunata. Long. .3, long. spir. .16, lat. .17, div. 50°.

Hab. Neeah Bay (*Swan*).

Painted like *L. decorata*, A. Ad., which differs in having a normal growth, with very slight chink.

35. *Isapis fenestrata*.

I. testa I. ovoideæ forma et indole simili; carinis ix. acutis (quarum iv. in spira monstrantur) cincta; interstitiis duplo latioribus, concinne quadratim decussatis, lirulis radiantibus acutissimis; anfr. postice tumentibus, suturis valde excavatis; peritremate continuo; labro a carinis pectinato; labio parietem parum attingente, medio calloso; umbilico angusto. Long. .18, long. spir. .13, lat. .19, div. 70°.

Hab. Necah Bay (*Swan*); S. Diego and Sta. Barbara Island (*Cooper*).

Dr. Cooper's shells are much smaller than those from the Vancouver district, which are white and eroded, varying much in the size of the umbilicus.

36. *Alvania reticulata*.

A. testa parva, subturrita, rufo-fusea, marginibus spiræ rectis; anfr. nucleosis ii. et dimidio, naticoidcis, lævibus, tumentibus, apice mamillato; norm. iii., tumidis, suturis impressis; liris angustis, distantibus, spiralibus circ. xii. (quarum iv.—vi. in spira monstrantur), et lirulis radiantibus, supra transeuntibus, haud nodulosis, secundum interstitia incurvatis, eleganter exsculpta; interstitiis altis, quadratis; peritremate continuo, subrotundato, acutiore. Long. .085, long. spir. .05, lat. .04, div. 30°.

Hab. Necah Bay; two specimens in shell-washings (*Swan*).

37. *Alvania filosa*.

A. testa A. reticulatæ indole et colore, haud sculptura, simili; multo majore, elongata; anfr. nucl. ?... (detritis), norm. iv.; striis parum separatatis circ. xviii. (quarum circ. xii. in spira monstrantur) cincta; rugulis radiantibus posticis creberrimis, haud expressis, circa peripheriam evanidis; peritremate continuo; columella rufo-purpureo tineta. Long. .13, long. spir. .09, lat. .06, div. 20°.

Hab. Necah Bay; one specimen in shell-washings (*Swan*).

[To be continued.]

XLVII.—Description of a new Species of Eublepharis.

By DR. ALBERT GÜNTHER.

Eublepharis fasciolatus.

Very similar in general habit to *E. Hardwickii*, but with the tubercles much less numerous and separated by granular interspaces as wide as the tubercles themselves. Opening of the ear wide. Nine upper and ten lower labials; two chin-shields larger than the first lower labial. The scales of the middle of the belly form twenty-four longitudinal series. A series of fourteen pores across the præanal region.

The *young* with brown cross bands: the first is horseshoe-shaped, and encircles the occiput, each branch advancing to the eye; there are two irregular brown spots within its concavity: the second band occupies the posterior two-thirds of the neck: the third and fourth across the middle of the trunk: the fifth across the sacral region. Tail with five brown rings. These bands and rings are broader than the interspaces of the ground-colour, which is brownish yellow.

In the *adult* only the brown edges of these bands remain; so that there is one pair of brown cross bars on the neck, and three pairs on the trunk, the space between the bars being of the ground-colour. The horseshoe-shaped band on the occiput remains single; but the markings on the head are more defined than in the young one, viz. a pair of brown rings on the crown of the head, one cross band between the eyes, and two on the snout; a longitudinal streak runs from the eye to the nostril. Lower parts white; a group of indistinct brown dots on the elbows and knees.

I am indebted to R. T. Riddell, Esq., for two specimens of this species: one is adult, $5\frac{1}{2}$ inches long, the length of the tail being $2\frac{1}{2}$ inches; the other, young example is 3 inches long, tail $1\frac{1}{4}$ inch. They were collected at Hydrabad, Sindh, where the species is unjustly reputed to be venomous.

XLVIII.—*On some peculiar Structures in the Seminal Fluid of Ianthina.* By FRITZ MÜLLER of Desterro*.

It is but rarely that pelagic animals find their way into the arm of the sea which separates the island of Santa Catharina from the mainland of South America. Amongst these visitors, which are sometimes absent for several years together, are two species of *Ianthina*, which usually make their appearance as attendants on swarms of *Verella*. One of them with a more acute spire (*I. exigua*, Lam.), of which only a few females have once been seen, bears its eggs upon the frothy appendage of the foot: the other, which has been repeatedly found, has a flatter spire (*I. pallida*, Harv.), and is viviparous; in this I ascertained that the frothy appendage occurs in precisely the same manner in both sexes.

In the seminal fluid of the latter species there are some very peculiar structures, to which I would call the attention of visitors to the Mediterranean and others who may have the opportunity of examining this remarkable Mollusk. It is very probable that such an opportunity may not occur to me again for years; and

* Translated by W. S. Dallas, F.L.S., from Wiegmann's 'Archiv,' 1863, p. 179.